

**NEW NUCLEAR MAGNETIC RESONANCE SCREENING METHOD**Abstract

The invention refers to a method for identifying at least one binder molecule comprising the steps of: (a) choosing two amino acid types (AA1 and AA2) in a polypeptide or protein of interest, whereby AA2 at least once occurs directly subsequent to AA1 in the amino acid sequence of the polypeptide or protein, defining an amino acid pair AA1-AA2; (b) labeling the two amino acid types (AA1 and AA2) in the polypeptide or protein of interest, whereby all AA1-residues is labeled with  $^{13}\text{C}$  and all AA2-residues with  $^{15}\text{N}$ ; (c) generating a first HNCO-type NMR spectrum of the labeled polypeptide or protein from step (b), thereby identifying signals from the labeled amino acid pair AA1-AA2; (d) contacting the labeled polypeptide or protein with a potential binder molecule or a mixture of binder molecules under conditions and sufficient time for allowing binding of the potential binder molecule(s) and the labeled polypeptide or protein; (e) generating a second HNCO-type NMR spectrum, or a  $^1\text{H}$ - $^{15}\text{N}$  correlation type NMR spectrum, of the mix from step (d), monitoring signals identified in step (c); (f) comparing the first and the second NMR spectra, whereby a chemical shift change of the signals identified in step (c) between the two spectra indicates an interaction between the potential binder molecule and the labeled polypeptide or protein.

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